Antoine C. **Petit**

Current position
Postdoctoral researcher
at Lund University

Contact
Sölvegatan 27
223 62 Lund
Sweden

+33 6 76 74 99 61

apetit@astro.lu.se

www.astro.lu.se/~apetit

– ORCID –
0000-0003-1970-1790

– Nationality –
French

Languages
French – native
English – fluent
Spanish – medium
Swedish – beginner

Programming
– HPC –
C++ & OpenMP
Fortran

– Data analysis –
Python
Jupyter, numpy
TRIP, Matlab

– General skills –
Linux, git, bash

Research interests

- Celestial and planet dynamics
- Stability of planetary systems
- Planet formation
- Statistics and architecture of planetary systems
- Numerical integration methods

Research experience

2019–2021 **Postdoctoral researcher** — Lund Observatory, Lund, Sweden
Postdoctoral fellowship in observational and theoretical astronomy.

2016–2019 **Post-graduate research** — Paris Observatory, Paris, France
"Architecture and stability of planetary systems",
Supervisors: Jacques Laskar and Gwenaël Boué.

2016 **Master thesis in astrophysics** — Paris Observatory, Paris, France
"First order mean motion overlap in planetary systems",
Supervisor: Jacques Laskar.

2015 **Master thesis in mathematics** — ENS, Paris, France
"Herman resonance in the three-body problem in four dimensions",
Supervisor: Jacques Féjoz.

2014 **Research internship** — UCSC, California, USA
"Mixing and transport of metals by turbulence in galactic discs",
Supervisors: Mark Krumholz and Doug Lin.

Education

2016–2019 **PhD in Astrophysics** — Paris Observatory, France
Title: "Architecture and stability of planetary systems",
Supervisors: Jacques Laskar and Gwenaël Boué.
Defended the 28th of June 2019.

2012-2016 **Diploma of the École Normale Supérieure (ENS)** — ENS, Paris, France
Most selective research focused university in France.
Specialization in Physics and Mathematics.

2015–2016 **Master's degree in Theoretical Physics** — ENS, Paris Observatoy & UPMC, Paris, France
Specialization in celestial mechanics, statistical physics & general relativity.

2014–2015 **Master's degree in Mathematics** — ENS, & UPMC, Paris, France
Specialization in dynamical systems and differential geometry.

2012–2014 **Bachelor's degree, Physics** — ENS, Paris, France

2010–2012 **Preparatory school in MPSI/MP*** — Lycée du Parc, Lyon, France
Two-year intensive program in advanced mathematics and physics to prepare the national competitive exams for entry to engineering schools.

2010 French Science Baccalauréat (High school diploma) — Grenoble, France

Publications

See the complete list on ADS here

2019 **High-order regularised symplectic integrator for collisional planetary systems** A&A, 628, A32
A. C. Petit, J. Laskar, G. Boué & M. Gastineau

2019 **Nearly Polar orbit of the sub-Neptune HD3167 c: Constraints on a multi-planet system dynamical history** A&A, in press
S. Dalal, G. Hébrard, A. Lecavelier, **A. C. Petit**, V. Bourrier, J. Laskar, P.-C. König & A. C. M. Correia

2018 **Hill stability in the AMD framework** A&A, 617, A93
A. C. Petit, J. Laskar & G. Boué

2017 **AMD-stability in the presence of first-order mean motion resonances** A&A, 607, A35
A. C. Petit, J. Laskar & G. Boué

2017 **AMD-stability and the classification of planetary systems** A&A, 605, A72
J. Laskar & **A. C. Petit**

2015 **Mixing of metals by gravitational instability-driven turbulence in galactic discs** MNRAS, 449, 3
A. C. Petit, M. Krumholz, N. Goldbaum & J. Forbes

Role as a reviewer

2017 – 2019 Reviewed 7 articles for the leading international astronomy journals : Astronomy & Astrophysics, Monthly Notices of the Royal Astronomical Society, Icarus

Awards and funding

2019 Fysiografen grant : The Fund of the Walter Gyllenberg Foundation : 220,000 kr (21,000 €)

2016 - 2019 PhD grant from the French government accorded by the ENS.

2012 - 2016 4-year fellowship as a trainee civil servant at the ENS.

2012 Accepted, after competitive national exams, to the Écoles Normales Supérieures in Paris (9th/1400 candidates), Lyon (8th/1400) and Cachan (7th/1400), eligible to the École Polytechnique.

Presentations and Conferences

Presentations

2018 PLATO Theory Workshop Cambridge, UK

2018 PNP prospective coloquium Nice, France

2017 Exoplanet and Planet Formation Shanghai, China

2017 CELMEC VII Viterbo, Italy

Seminars

Oct. 2019 Astronomy department seminar Lund, Sweden

Jan. 2019 Planet formation meeting Lund, Sweden

2018 ASD team seminar Paris, France

2017 IMCCE PhD student seminar Paris, France

Conference committees

2020 For All Meeting local organization committee Lund, Sweden

Teaching and Outreach

2020–2021 **Master project supervisor** Lund University, Sweden
Supervision of a 1.5 year master project. Subject: Capture of planets into mean motion resonances.

2019 **Culture night outreach talk** Lund University, Sweden
The moons of the Solar System

2018–2019 **Teaching Assistant** Dauphine University, Paris, France
Exercises sessions of probabilities and Lebesgue integration at Bachelor level (40 hours). Graded all written work, and final written exams.

2013 **Oral examiner** Lycée Louis le Grand, Paris, France
Mathematics examiner in preparatory classes.